Comment on: awareness about hypothyroidism among the population in the northern border region, Saudi Arabia: a cross-sectional study

Digital sampling bias in health surveys

Burçak Cavnar Helvacı
Department of Endocrinology, Ankara Etlik City Hospital, Ankara, Türkiye

To the editor:
We read with great interest the valuable study by Hussain et al. titled "Awareness about hypothyroidism among population in the northern border region, Saudi Arabia: A cross-sectional study" published in Annals of Clinical and Analytical Medicine [1]. The authors have conducted important research addressing a significant public health issue in the region. However, we would like to suggest methodological improvements that could enhance the generalizability of future similar studies.
The authors employed online questionnaires distributed exclusively through social media and Google Forms to assess hypothyroidism awareness among the general population. This digital-only data collection method creates inherent selection bias toward tech-savvy individuals, as evidenced by their sample demographics: 58% of participants were aged 22-30 years, 71% possessed university degrees, and 97% resided in urban areas.
This sampling approach systematically excludes populations with limited digital literacy or internet access, particularly older adults, rural residents, and individuals with lower educational attainment. Such exclusion is problematic given that these demographic groups may have substantially different levels of hypothyroidism awareness and represent significant portions of the Northern Border population.
Online survey methodologies are well-documented to underrepresent certain demographic strata, potentially compromising external validity [2]. The authors' conclusion of "moderate awareness" may therefore overestimate actual population-level knowledge, as their sample predominantly captures digitally connected, younger, and more educated individuals.
We recommend future internet-based studies consider implementing weighted sampling techniques to adjust for demographic imbalances, utilizing social media advertising with targeted demographic parameters to reach underrepresented groups, partnering with local healthcare facilities to distribute digital survey links during routine visits, and employing mixed-mode data collection strategies combining online surveys with telephone interviews to achieve more representative sampling [3]. Additional techniques for correcting online survey biases should also be considered [4].
We look forward to the authors' future research contributions in this important area.

Ethical Approval
Ethical approval was not required for this study as it was a Letter to the Editor based on previously published data and did not involve any human or animal participants.

References
1. Elmorsy E. Awareness about hypothyroidism among the population in the northern border region, Saudi Arabia: A cross-sectional study. Ann Clin Anal Med. 2025;16(4):254-9 doi:10.4328/ACAM.22324.
2. Bethlehem J. Selection Bias in Web Surveys. Int Stat Rev. 2010;78(2):161-88. doi:10.1111/j.1751-5823.2010.00112.x.
3. Beebe TJ, Locke GR, 3rd, Barnes SA, Davern ME, Anderson KJ. Mixing web and mail methods in a survey of physicians. Health Serv Res. 2007;42(3):1219-34. doi:10.1111/j.1475-6773.2006.00652.x.
4. Couper MP. Review: Web surveys: a review of issues and approaches. Public Opin Q. 2000;64(4):464–94. doi:10.1086/318641.

Scientific Responsibility Statement
The authors declare that they are responsible for the article's scientific content, including study design, data collection, analysis and interpretation, writing, and some of the main line, or all of the preparation and scientific review of the contents, and approval of the final version of the article.

Animal and Human Rights Statement
No animal or human studies were carried out by the authors for this article.

Conflicts of Interest
Authors reveal no conflicts of interest.

Funding
No funding was received for this work.

How to cite this article:
Burçak Cavnar Helvacı. Addressing digital sampling bias in hypothyroidism awareness studies. Ann Clin Anal Med 2026;17(2):189

DOI: 10.4328/ACAM.22772 Received: 13/06/2025 Accepted: 21/07/2025 Published Online: 05/08/2025 Printed: 01/02/2026 Ann Clin Anal Med 2026;17(2):189
Corresponding Author: Burcak Cavnar Helvaci, Department of Endocrinology, Ankara Etlik City Hospital, Ankara, Türkiye.
E-mail: burcakcavnar@gmail.com P: +90 537 381 78 50
Corresponding Author ORCID ID: https://orcid.org/0000-0002-8356-4463